

15. A laser scanner measuring system according to Claim 14, wherein said emitter unit and said receiver unit are disposed on the same side relative to an object to be measured.

16. A laser scanner measuring system according to Claim 15, further comprising a retro reflector unit arranged behind said object to be measured, when seen from said emitter unit, which retro reflector unit reflects any incident radiation back either in itself or with a parallel offset such that the receiver beam path will be located in a plane offset in parallel from the scanning plane.

33 17. A laser scanner measuring system according to Claim 14, further comprising at least one retro reflector or a retro-reflecting marker disposed inside said emitter unit in a zone between said beam deflector unit and a beam-emerging site.

18. A laser scanner measuring system according to Claim 14, further comprising one or several receiver units or retro reflectors are disposed at an angle different from  $0^\circ$  or  $180^\circ$  relative to the optical axis of the scanner unit in the scanning plane.

19. A laser scanner measuring system according to Claim 14, further comprising an optical system arranged in the scanner beam path for splitting the scanning beam in the direction orthogonal on the scanning direction.

20. A laser scanning measuring system according to Claim 19, wherein there is formed a grid having lines oriented orthogonally with respect to the scanning direction.

21. A laser scanner measuring system according to Claim 14, further comprising an optical system arranged in the scanner beam path for splitting the scanning beam in the direction parallel with the scanning direction.

32 22. A laser scanning measuring system according to Claim 21, where there is formed a grid having lines oriented parallel with respect to the scanning direction.

23. A laser scanner measuring system according to Claim 14, further comprising optical elements disposed in the illuminating beam path and/or the receiver beam path for radiation of different polarisation.

24. A laser scanning measuring system according to Claim 23, wherein said optical elements are a polarising beam splitter, a Wollaston prism, a retarding plate of a Glan-Thomson prism.

25. A laser scanner measuring system according to Claim 14, wherein filters selective in terms of wavelength disposed in the receiver beam path.

26. A laser scanning measuring system according to Claim 25, wherein said filters are interference filters, color filters or cut-off filters.

27. A laser scanner measuring system according to Claim 14, wherein a reference beam path is realised in the combined scanner/receiver unit, in the outside space or by means of a light guide, which is superimposed by the beam path coming from the object to be measured in such a way that the resulting interference pattern which varies locally and in the course of time is detected by means of at least one detector element.

28. A laser scanner measuring system according to Claim 14 for application for control of a production process.

29. A laser scanner measuring system comprising an emitter unit having a laser, a beam deflector unit and an optical emitter system, which define a scanning beam path as well as a scanning plane; and a receiver unit including a photo detector disposed in the focal plane of an optical receiver system for a receiver beam path, the surface normal of said optical receiver system being parallel with the scanning beam path, and said photo detector being a photo diode array or a position-resolving photo diode.

30. A laser scanner measuring system according to Claim 29, wherein said emitter unit and said receiver unit are disposed on the same side relative to an object to be measured.

31. A laser scanner measuring system according to Claim 30, further comprising a retro reflector unit provided behind said object to be measured, when seen from said emitter unit, which reflects any incident radiation back either in itself or with a parallel offset such that the receiver beam path will be located in a plane offset in parallel from the scanning plane.

32. A laser scanner measuring system according to Claim 29, further comprising at least one retro reflector or a retro-reflecting marker disposed inside said emitter unit in a zone between said beam deflector unit and a beam-emerging site.

33. A laser scanner measuring system according to Claim 29, further comprising one or several receiver units or retro reflectors disposed at an angle different from  $0^\circ$  or  $180^\circ$  relative to the optical axis of the scanner unit in the scanning plane.

34. A laser scanner measuring system according to Claim 29, further comprising an optical system arranged in the scanner beam path for splitting the scanning beam in the direction orthogonal on the scanning direction.

35. A laser scanning measuring system according to Claim 34, wherein there is formed a grid having lines oriented orthogonally with respect to the scanning direction.

36. A laser scanner measuring system according to Claim 29, further comprising an optical system arranged in the scanner beam path for splitting the scanning beam in the direction parallel with the scanning direction.

37. A laser scanning measuring system according to Claim 36, where there is formed a grid having lines oriented parallel with respect to the scanning direction.